

REMARKS

Summary of Office Action

Claims 1-84 are pending in the above-identified patent application.

The Examiner has rejected claims 1-3, 32, 33, 35-48, 77, 78 and 80-84 under 35 U.S.C. § 102(b) as being anticipated by Wang et al. U.S. Patent 6,448,820. Claims 34 and 79 have been rejected under 35 U.S.C. § 103(a) as being obvious from Wang in view of Linebarger et al. U.S. Patent 6,141,394. Each of claims 4-31 and 49-76 has been objected to as depending from a rejected based claim, but allowable subject matter has been indicated. FIG. 1 of the drawings has been objected to because of an enumerated informality.

Summary of Applicant's Reply

Applicant notes with appreciation the indication of allowable subject matter in claims 4-31 and 49-76 and hereby expressly reserves the right to rewrite any one or more of claims 4-31 and 49-76 in independent form should the base claims ultimately not be allowed.

Applicant has amended claims 1, 10, 15, 22, 27, 46, 50, 55, 60, 67 and 72 in order to more particularly define the invention. Applicant is also submitting one (1) sheet of substitute drawings including a corrected FIG. 1. The Examiner's rejections and objection are respectfully traversed.

Applicant's Reply to The Drawing Objection

FIG. 1 of the drawings has been objected to because the contents of box 17 should have been -- ÷M -- rather than "-M." This objection is respectfully traversed.

Applicant has submitted a corrected Sheet 1 of the drawings, containing a corrected FIG. 1 in which the contents of box 17 have been changed from "-M" to -- ÷M --. Applicant therefore respectfully requests that the objection to the drawings be withdrawn.

Applicant's Reply to the
Prior Art Rejections

Claims 1-3, 32, 33, 35-48, 77, 78 and 80-84 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Wang, and claims 34 and 79 have been rejected under 35 U.S.C. § 103(a) as being obvious from Wang in view of Linebarger. These rejections are respectfully traversed.

Applicant's claims define a phase-locked loop (PLL) circuit for use in a programmable logic device (PLD), or a PLD incorporating such a PLL circuit. The PLL circuit includes an oscillator and feedback path with at least one component. A component in the feedback path is also connected to another part of the PLD. As explained in the specification and as defined in dependent claims 2 and 3, this allows either (1) a component elsewhere on the PLD to be substituted for the component in the feedback path of the PLL, or (2) the component in the feedback path of the PLL to be used elsewhere on the PLD in a situation where the PLL is not being used in the user logic design, leaving the component otherwise idle.

Wang neither shows nor suggests such a PLL or PLD. Wang shows a phase-frequency detector (PFD) having m states. The PFD may be used in a PLL or in a delay-locked loop (DLL). The PLL or DLL (loop circuit) may be incorporated into a PLD, which in turn may be incorporated into a digital system. There is no disclosure or suggestion in Wang that, in a case where the loop circuit is part of a PLD, any portion of the loop circuit, particularly a component of the feedback path, is connected to any other portion of the PLD.

The Examiner points to FIG. 1 of Wang, and particularly to element 121 of FIG. 1, as providing that disclosure. Applicant respectfully disagrees. FIG. 1 shows a digital system including a processing unit coupled to memory and input/output (I/O) circuitry. The processing unit is shown as incorporating a PLD, which is shown as optionally having its own connections to the memory and I/O circuitry. There is no disclosure in FIG. 1 of the internal structure of the PLD, and certainly not of a loop circuit,

let alone disclosure of a component in the feedback loop of a loop circuit also being connected elsewhere in a PLD of which the loop circuit is a part or with which the loop circuit is being used.

Nor is that disclosure found anywhere else in Wang. In the disclosure in Wang of the feedback loop of the loop circuit (see, e.g., FIGS. 5 and 6), the components of the feedback loop are not shown to be connected to any component outside the loop circuit.

Linebarger does not make up for the deficiencies of Wang in not showing or suggesting the claimed invention. Linebarger, which shows a frequency synthesizer, and which is cited by the Examiner only for its alleged showing of the scaling counters of applicant's claims 34 and 79, does not show a PLD at all, let alone the connection of any component of a feedback loop of a loop circuit being connected to another portion of a PLD.

For these reasons, applicant respectfully submits that the pending claims are patentable over Wang and Linebarger.

The Claim Amendments


Applicant has amended the claims to clarify that the aforementioned connection of a component in the feedback loop to another component of the PLD (i.e., outside the loop circuit) is programmable. Applicant's specification makes plain throughout that the connections of a feedback loop component to other portions of the PLD are connectable based on the needs of a particular user logic design of the PLD -- i.e., they are programmably connectable. Accordingly, the amendments do not introduce new matter, nor do they narrow the claims, but rather merely clarify the claims, or even broaden them.*

* For those reasons, applicant respectfully submits that none of the amendments is a "substantial amendment related to patentability" under the doctrine of Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 62 USPQ2d 1705 (2002), and related cases. Moreover, insofar
(continued...)

Conclusion

For the reasons set forth above, applicant respectfully submits that the above-identified patent application, as amended, is in condition for allowance. Reconsideration and prompt allowance of this application are respectfully requested.

Respectfully submitted,

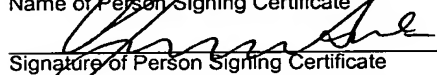


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as the amendments are believed to be broadening amendments or, at least, merely clarifying amendments, they are not narrowing amendments under that doctrine.

Amendments of the Drawings

The attached Replacement Sheet 1 of the drawings includes changes to FIG. 1. This sheet, which includes only FIG. 1, replaces the original Sheet 1 including only FIG. 1. In replacement FIG. 1, the contents of box 17 have been changed from "-M" to -- ÷M --.

Attachment: Replacement Sheet 1 of 7
 Annotated Sheet 1 of 7 Showing Changes

